

Early Containment of Severe Acute Respiratory Syndrome (SARS): Experience from Bamrasnaradura Institute, Thailand

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Background: On March 11, 2003, Dr. Carlo Urbani was admitted to Bamrasnaradura Institute, after alerting the world to the dangers of SARS in Vietnam and developing a fever himself. Specimens from the first day of admission were among the first to demonstrate the novel coronavirus, by culture, RT-PCR, and rising specific antibody, but proper protective measures remained unknown. We instituted airborne, droplet and contact precautions from the time of admission, and reviewed the efficacy of these measures.

Methods: A specific unit was set up to care for Dr. Urbani, beginning by roping off an isolated room and using a window fan to create negative pressure, and later by constructing a glass-walled antechamber, designated changing and decontamination areas, and adding HEPA filters. The use of personal protective equipment (PPE) was consistently enforced by nurse managers for all staff and visitors, including a minimum of N95 respirators, goggles or face shields, double gowns, double gloves, and full head and shoe covering, and full PAPR respirators for intubation. To assess the adherence to PPE and the possibility of transmission to exposed staff, a structured questionnaire was administered and serum samples tested for SARS CoV by ELISA. Exposure was defined as presence on the SARS ward or contact with laboratory specimens, and close contact was presence in the patient room.

Results: Dr. Urbani died from respiratory failure on day 19. 112 of 145 exposed staff completed questionnaires, and the 70 who entered the patient room reported a mean of 42 minutes of exposure (range 6 minutes – 23.5 hours). 100% reported consistent handwashing after exposure, 95% consistently used a fit-tested N95 or greater respirator, and 80% were fully compliant with strict institutional PPE protocol. No staff developed illness consistent with SARS. 35 of 70 close contacts had a negative serum sample obtained after day 28.

Conclusions: Hospitalization of one of the earliest SARS patients with documented coronavirus shedding provided multiple opportunities for spread to hospital staff, but strict enforcement of conservative infection control recommendations throughout the hospitalization was associated with no transmission.

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